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**[CLAIMS]**

1. Image storage screen or panel comprising a binderless needle-  
5 shaped stimulable phosphor and a substrate, characterized in that  
said substrate has a surface roughness of less than 2  $\mu\text{m}$  and a  
reflectivity of more than 80%.
2. Screen or panel according to claim 1, wherein said reflectivity  
is at least 90%.
- 10 3. Screen or panel according to claim 1, wherein said reflectivity  
is at least 95%.
4. Screen or panel according to claim 1, wherein said substrate has  
a surface roughness of less than 1  $\mu\text{m}$ .
5. Screen or panel according to claim 2, wherein said substrate has  
15 a surface roughness of less than 1  $\mu\text{m}$ .
6. Screen or panel according to claim 3, wherein said substrate has  
a surface roughness of less than 1  $\mu\text{m}$ .
7. Screen or panel according to claim 1, wherein said phosphor is a  
CsX:Eu phosphor, wherein X is selected from Br and Cl.
- 20 8. Screen or panel according to claim 2, wherein said phosphor is a  
CsX:Eu phosphor, wherein X is selected from Br and Cl.
9. Screen or panel according to claim 3, wherein said phosphor is a  
CsX:Eu phosphor, wherein X is selected from Br and Cl.
10. Screen or panel according to claim 4, wherein said phosphor is a  
25 CsX:Eu phosphor, wherein X is selected from Br and Cl.

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11. Screen or panel according to claim 5, wherein said phosphor is a CsX:Eu phosphor, wherein X is selected from Br and Cl.
12. Screen or panel according to claim 6, wherein said phosphor is a CsX:Eu phosphor, wherein X is selected from Br and Cl.
- 5 13. Screen or panel according to claim 1, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.
14. Screen or panel according to claim 2, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.
15. Screen or panel according to claim 3, wherein said substrate is  
10 an amorphous carbon layer, overcoated with a reflecting layer.
16. Screen or panel according to claim 4, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.
17. Screen or panel according to claim 5, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.
- 15 18. Screen or panel according to claim 6, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.
19. Screen or panel according to claim 7, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.
20. Screen or panel according to claim 8, wherein said substrate is  
20 an amorphous carbon layer, overcoated with a reflecting layer.
21. Screen or panel according to claim 9, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.
22. Screen or panel according to claim 10, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.

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23. Screen or panel according to claim 11, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.

24. Screen or panel according to claim 12, wherein said substrate is an amorphous carbon layer, overcoated with a reflecting layer.

5 25. Screen or panel according to claim 13, wherein said reflecting layer is an aluminum layer.

26. Screen or panel according to claim 14, wherein said reflecting layer is an aluminum layer.

10 27. Screen or panel according to claim 15, wherein said reflecting layer is an aluminum layer.

28. Screen or panel according to claim 16, wherein said reflecting layer is an aluminum layer.

29. Screen or panel according to claim 17, wherein said reflecting layer is an aluminum layer.

15 30. Screen or panel according to claim 18, wherein said reflecting layer is an aluminum layer.

31. Screen or panel according to claim 19, wherein said reflecting layer is an aluminum layer.

20 32. Screen or panel according to claim 20, wherein said reflecting layer is an aluminum layer.

33. Screen or panel according to claim 21, wherein said reflecting layer is an aluminum layer.

34. Screen or panel according to claim 22, wherein said reflecting layer is an aluminum layer.

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35. Screen or panel according to claim 23, wherein said reflecting layer is an aluminum layer.

36. Screen or panel according to claim 24, wherein said reflecting layer is an aluminum layer.

5 37. Screen or panel according to claim 1, wherein a moisture-repellent layer is present inbetween said substrate and said phosphor layer.

10 38. Screen or panel according to claim 4, wherein a moisture-repellent layer is present inbetween said substrate and said phosphor layer.

39. Screen or panel according to claim 7, wherein a moisture-repellent layer is present inbetween said substrate and said phosphor layer.

15 40. Screen or panel according to claim 13, wherein a moisture-repellent layer is present inbetween said substrate and said phosphor layer.

41. Screen or panel according to claim 1, wherein, adjacent to the said phosphor layer, a moisture-repellent layer is coated as an outermost layer.

20 42. Screen or panel according to claim 4, wherein, adjacent to the said phosphor layer, a moisture-repellent layer is coated as an outermost layer.

25 43. Screen or panel according to claim 7, wherein, adjacent to the said phosphor layer, a moisture-repellent layer is coated as an outermost layer.

44. Screen or panel according to claim 13, wherein, adjacent to the said phosphor layer, a moisture-repellent layer is coated as an outermost layer.

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45. Screen or panel according to claim 37, wherein said moisture-repellent layer is a parylene layer.

46. Screen or panel according to claim 38, wherein said moisture-repellent layer is a parylene layer.

5 47. Screen or panel according to claim 39, wherein said moisture-repellent layer is a parylene layer.

48. Screen or panel according to claim 40, wherein said moisture-repellent layer is a parylene layer.

10 49. Screen or panel according to claim 41, wherein said moisture-repellent layer is a parylene layer.

50. Screen or panel according to claim 42, wherein said moisture-repellent layer is a parylene layer.

51. Screen or panel according to claim 43, wherein said moisture-repellent layer is a parylene layer.

15 52. Screen or panel according to claim 44, wherein said moisture-repellent layer is a parylene layer.

53. Use of a screen or panel according to claim 1 in a system for computed radiography.

20 54. Use of a screen or panel according to claim 4 in a system for computed radiography.

55. Use of a screen or panel according to claim 7 in a system for computed radiography.

56. Use of a screen or panel according to claim 13 in a system for computed radiography.

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57. Use of a screen or panel according to claim 37 in a system for computed radiography.

58. Use of a screen or panel according to claim 41 in a system for computed radiography.

5 59. Use of a screen or panel according to claim 45 in a system for computed radiography.

60. Use of a screen or panel according to claim 53 in mammographic applications.

10 61. Use of a screen or panel according to claim 54 in mammographic applications.

62. Use of a screen or panel according to claim 55 in mammographic applications.

63. Use of a screen or panel according to claim 56 in mammographic applications.

15 64. Use of a screen or panel according to claim 57 in mammographic applications.

65. Use of a screen or panel according to claim 58 in mammographic applications.

20 66. Use of a screen or panel according to claim 59 in mammographic applications.